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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/474,916	12/29/1999	YOSHIAKI NANKO	SIC-99-036	2926

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EXAMINER

CHARLES, MARCUS

ART UNIT	PAPER NUMBER
3682	

DATE MAILED: 04/02/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/474,916	NANKO ET AL.	
Examiner	Marcus Charles	Art Unit	3682

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 03 January 2002 .

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-36 is/are pending in the application.
4a) Of the above claim(s) 3,5,11-13,16-18,26-30,33 and 34 is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1,2,4,6-10,14,15,19-25,31,32,35,36 and 38 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) Notice of References Cited (PTO-892) 4) Interview Summary (PTO-413) Paper No(s). _____
2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) Notice of Informal Patent Application (PTO-152)
3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) Other: _____

DETAILED ACTION

This action is responsive to the amendment filed 01-03-2002, which has been entered.

Claim 37 has been canceled. Claims 1-36 are currently pending.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-2, 4, 8-10, 14-15, 19-20, 35 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu in view of Guiles('658). Liu discloses a drive mechanism comprising a crank arm (12) having a crank axle hole (21) around a rotational axis, a drive member (20) supported coaxially with the rotational axis. Liu discloses the drive member has an abutment (252) facing the forward direction but does not disclose a non-concave first slope facing the rearward rotational direction of the crank arm. Guiles discloses a drive member (9) having a non-concave slope facing the rearward rotational direction of the crank arm (8) in order to reduce the weight and to avoid frictional contact during operation. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the drive member of Liu to include the limitation of Guiles in order to reduce the weight and to avoid frictional contact during operation.

In claim 2, note the first abutment surface is perpendicular to the outer peripheral surface of the crank arm.

In claim 4, the drive member is coaxial with the rotational axis.

In claim 9, note the first abutment surface is 180 degrees from the second abutment.

In claim 19-20, note, the pedal mounting hole at the opposite ends of the right side crank arm.

In claim 35, the drive member has only two abutment surfaces (252, 261).

3. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liu in Guiles and Yamanaka('072). Liu in view of Guiles discloses the claimed invention in paragraph 2 above, except for the splines in the crank axle-mounting hole. Yamanaka discloses the splines in the mounting hole of the crank axle in order to mate with the crank spindle and to non-rotatably receiving the crank spindle. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the mounting hole of Liu to include splines in view of Yamanaka in order to mate with the crank spindle and to non-rotatably receiving the crank spindle.

4. Claims 32 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu in view of Guiles. Liu discloses the claimed invention except that the outer peripheral surface which intersect the radial inner portion of the abutment surface extend for at least 20°. It would have been a matter of obvious design choice to one of ordinary skill in the art at the time of the invention to modify the peripheral surface such that the abutment surface extends at an angle of at least 20°, since applicant has not disclosed that having the surface extend for at any specified angle solves any stated problem or is for any particular purpose and it appears that the abutment surface would

perform equally well with a surface extending at any angle that falls within a desirable specified range.

5. Claims 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu in view of Guiles as applied to claim 1 above, and further in view of Browning. Liu does not disclose a sprocket-mounting member for mounting a sprocket to the crank arm. Browning discloses a sprocket mounting member (51) comprising four mounting arms (52), a large diameter sprocket and a small diameter sprocket are retained to the mounting member in order to make the system easy to operate and to increase the ease during replacement of sprockets. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to further modify Liu device to include the limitations of Browning in order to make the system easy to operate and to increase the ease during replacement of sprockets.

6. Claims 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu in view of Guiles and Hsu. Liu in view of Guiles discloses the claimed invention as in paragraph 2 above, except for a large and small diameter sprocket retained to a sprocket-mounting member of the crank axle. Hsu discloses a sprocket mounting member which has a large and small diameter sprocket (1, 2) retained to the sprocket member and a shift assist mechanism (13) on the larger sprocket in order to cause the chain to run smoothly from the large to the small sprockets during gear down. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Liu device to include the limitations of Hsu in order to cause the chain to run smoothly from the large to the small sprockets during gear down.

7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Guiles in view of Yamanaka('072).⁷ Guiles discloses a drive mechanism comprising a crank arm (8) which includes a rotational axis (1), a drive member (9) which comprises an annular ring (9) with an abutment (10) facing a forward rotational direction, a non-concave first sloped surface extending from a radially outer portion of the abutment and facing a rearward rotational direction. Guiles discloses a key way in the ring and crank arm, but does not disclose the inner peripheral surface of the ring has splines that engage the plurality of splines of the crank arm. Yang discloses a drive ring (161) includes a plurality of splines that engage a plurality of splines in a crank arm (10) in order to allow the ring and the arm to rotate in unison and to allow for easy dismantling and assembling with out the use a additional tools. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the key way on Guiles device to include a plurality of splines in view of Yang in order to allow the ring and the arm to rotate in unison and to allow for easy dismantling and assembling with out the use a additional tools.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Calderazzo(481) and JP('569876) disclose a drive mechanism of a bicycle.

Response to Arguments

9. Applicant's arguments filed 01-03-2002 have been fully considered but they are not persuasive.
10. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.
11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marcus Charles whose telephone number is (703) 305-6877. The examiner can normally be reached on Monday -Thursday 7:30 am-600 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bucci can be reached on (703) 308-3668. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3597 for regular communications and (703) 305-3597 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-2168.



Marcus Charles
Examiner
Art Unit 3682
March 24, 2002